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Rural Lines

APRIL
1956

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Cop 3

Electrification Section

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APR 6 1956





A Message from the

ADMINISTRATOR

REA is pledged to meet the annual loan needs of the borrowers. We have done so each year. And we will continue to do so.

But every time the Federal budget is announced, the fear that the co-ops are going to be starved for money always seems to gain a certain amount of currency and creates apprehension that is completely unnecessary.

In the electrification program we ask the borrowers each year in our survey how much loan money they expect to need. Thus far those estimates have been quite accurate.

With these estimates as a base we come up with a figure that we can justify both to the Bureau of the Budget and the Congress.

For the coming fiscal year, for example, the electrification figure came to \$145 million.

But that does not begin to tell the story of the money which would be available for loans.

Add to this amount a carryover of \$35 million not used in previous years. Then add \$25 million from the reserve fund. And each year there are some recissions of money that can be used over again.

In other words, the total available for loans would amount to well over \$200 million. That is considerably higher than actual loan totals for the past four years, the highest of which was \$167.5 million.

The situation is the same in the telephone program. Our request is for \$50 million in new funds. But carry-over and recissions will make the total available for loans come to \$80 million.

So next time you hear someone talking about the funds available for REA loans, you may want to check up and see whether you're getting the whole picture or just a fraction of it.



D. L. Nelson
Administrator.



Manufacturers Bid for Exclusive Rights To Conduct Iowa-Wisconsin Co-op Demonstrations

Power Use 'Socials'

Community-wide power use demonstration meetings, featuring top sales promotion talent from electric equipment and appliance manufacturers, are stimulating "white goods" and farm production equipment sales for dealers in areas served by 48 Iowa and Wisconsin electric cooperatives.

As the demonstrations swing into their fourth year there are plenty of signs to show that the novel power use "socials" are catching on with more and more rural people.

Those consumers you talk to say they like the get-togethers, the friendly country class-room setting, and professional showmanship. For instead of traveling miles to a dealer's showroom, co-op members can sit comfortably in a neighborhood meeting place and see a full-dress power use demonstration. Best of all, they

say, the meetings are free, and there's no prodding to buy.

The popular acceptance of the demonstrations is the result of three years of planning and trying by many people, including co-op managers, directors, electrification advisers, personnel of the Iowa Rural Electric Cooperative Association and representatives of manufacturer-distributor-dealer organizations, plus a helping hand from REA field staffer Robert E. Turner.

In 1953 leaders of Southern Iowa Rural Electric Cooperative of Bloomfield realized a need for more active merchandising of electrical equipment in their area. Electric appliances just weren't going on the line fast enough.

To spark interest in "white goods" and farm choring equipment, Manager T. F. Fieker scheduled a series of manufacturer-planned demonstrations. He

wasn't sure how it would go over with members. The outcome was a pleasant surprise: Members reacted enthusiastically and dealer sales perked up.

Soon Southern Iowa's new sales approach was adopted as a joint program by four of its neighboring cooperatives: Chariton Valley Electric Cooperative, Albia; Pella Cooperative Electric Association, Pella; Clarke Electric Cooperative, Osceola; and Rideta Electric Cooperative, Mount Ayr.

The five cooperatives developed a combined program of demonstrations which called for manufacturers to provide high grade professional talent.

News of the demonstration plan soon spread, and other co-ops put the plan into action. The plan received further backing when the statewide Member Education and Electric Use Committee approved the plan, and the parent IRECA adopted it as a state activity.

Forty-two of Iowa's 50 rural electric cooperatives, representing about 125,000 consumers, are now solidly behind the demonstration method. They have formed four planning groups to work with manufacturers. In addition six co-ops in southwest Wisconsin have borrowed the plan.

For manufacturers, the potential buying power of combined co-

Demonstration plans are threshed out by co-op representatives. Conferring here are Bill Wisdom (left), executive secretary, Iowa Rural Electric Cooperative Association, Des Moines; Jack K. Hicks, manager, Linn County Electric Cooperative, Marion; John J. Hyde, manager, Southwestern Federated Power Cooperative, Cres-
ton; Charles R. Aiken, educational director, IRECA, and Robert E. Turner, REA operations field representative.

op membership offers a strong incentive, and most of them are providing top promotion talent at demonstrations.

Here's the way Iowa and Wisconsin co-op groups set the stage for their demonstration meetings:

1. Several neighboring co-ops organize with a chairman and secretary.
2. Each co-op picks appliances and equipment it wants demonstrated.
3. Manufacturers of those items are invited to participate and to send representatives to a meeting at a central point.
4. Manufacturers are interviewed by group.
5. Co-op representatives sit as a jury and listen to manufacturers describe the kind of demonstration they will put on and other promotional aid they will provide.
6. Each co-op selects a particular manufacturer to conduct its demonstrations. It also sets dates for demonstrations. Generally the dates tie to the national power use calendar.
7. Each participating manufacturer calls upon his list of co-ops to set up meetings.
8. Co-op arranges for meeting places and handles publicity.
9. Co-op and manufacturer-distributor and dealer organizations conduct meetings as scheduled. Manufacturer puts on show and furnishes refreshments while co-op and dealers offer door prizes.

The five Iowa and Wisconsin co-op groups have scheduled a total of 714 demonstration meetings for 1955-1956. More than half of



the total, some 425 meetings, will feature farm choring and production equipment. Thirty-two manufacturers have signed up to join in the demonstration meetings this year.

William H. (Bill) Wisdom, executive secretary of IRECA, points to these benefits realized from the demonstration meetings:

1. Manufacturers tap a large market potential, gain additional consumer knowledge of their products, and speed up buying decisions.
2. Supplier and dealer broaden scope of their sales activities, receive larger discounts on greater volume, become better known to consumers.
3. Co-op extends its member education program in power use. More appliances on the line add up to more KWH, strengthen borrower's financial position.
4. Co-op members get the information they want and need about power use.

Explains Mr. Wisdom, "We think that one important factor in the wide acceptance of the program is the fact that while it is a group effort, each participating cooperative has its own individual program. The group coordination simply increases effectiveness in attracting manufacturers and their skilled demonstration staffs."

KWH consumption offers a good measuring-stick of the results co-ops are getting from their group planning. A look at power sales charts shows a sharper increase in consumption beginning with the initial demonstration meetings.

And how do the participants regard the co-op-manufacturer-dealer cooperation?

"In two years we figure the demonstration meetings held in our area helped give a 10 percent gain in consumption," says Edward W. Welch, manager of the Rock County Electric

Cooperative, Janesville, Wis. "Our first demonstration on barn cleaners two years ago sold eight installations for sure. A second demonstration helped sell two more."

"We set up an advisory committee of 25 members—one for each community—to help promote the demonstration meetings. These advisers talk up the meetings in their communities and keep us posted on what members need and want."

Dealers are enthusiastic too. The Edgerton Electric Sales, Edgerton, Wis., reported eight major appliances sold within a week of a demonstration meeting. This planned demonstration meeting brought greater results than three previous demonstrations of the same "white goods."

The meetings are "naturals" for the manufacturer who has to do an educational job in selling "big ticket" choring equipment costing in the hundreds of dollars.

"Demonstrations in co-op areas are new for us and we like the idea," E. J. Simons of the James Manufacturing Company, Fort Atkinson, Wis., admits. "Demonstrating our equipment to one farmer at a time was slow work. Now we can reach more people and do a more thorough demonstration job. We can't evaluate the plan in dollars and cents, but can trace a number of sales to the meetings."

Manager Dale G. Schreiner of the Woodbury County Rural Electric Cooperative Association, Motteville, Iowa, points out that his co-op has had a power use program going for 15 years.

"The demonstration meetings are bringing merchandising help we couldn't get before, because dealers and manufacturers weren't interested," Mr. Schreiner says. "We have 11 demonstrations scheduled this year. We expect to double our meeting attendance over last year."

"We managers can't continue in the same groove in power use promotion. We've got to try new gimmicks and approaches."

Deputy Administrator Strong Discusses The Factors Directors Should Weigh

DEBT-FREE CO-OPS?

"Is it good or bad to be out of debt?"

An increasing number of co-op boards of directors will face this question in the future as the rural electric systems mature. There is no short, single answer which could apply with equal accuracy and pertinence to all of the nearly 1,000 borrowers in the REA electric program. Their economic circumstances, operating requirements and capital needs vary widely. Decisions as to accelerated reduction of debt, or its complete elimination, must be made by each individual board of directors in the light of local circumstances and needs.

Several electric cooperatives have paid their way free of debt to the Federal Government. Others are moving in that direction.

Debt, or its elimination, is a matter of objectives and how best to attain them. The objective of a rural electric cooperative is to serve all of its members adequately with electric power at the lowest cost consistent with sound business operation, and without profit. The cooperative is owned by its members. This being so, the cooperative's indebtedness is the debt of its farmer-owner-members. Is it to their advantage to

pay off the debt to the Government?

Here are some of the possible advantages for the debt-free co-operative:

1. More freedom of action for the owners, with the elimination of the contractual restrictions on employment of managers, investment policies, accounting and auditing, transfer, sale and removal of property, insurance, handling of partonage capital, methods or types of construction and similar matters.

2. An enhanced position if the cooperative wanted to borrow from private sources.

3. More true equity for members in the event of dissolution or sale.

4. Members would be more inclined to take active interest in the affairs of the cooperative, and could say with full honesty and pride that theirs was a locally-owned and independent service institution.

5. A substantial saving in interest charges, opening the way to rate reductions.

Among those who take the opposite view on the elimination of debt, these disadvantages are cited:

1. The possibility that the Gov-

This article is based on remarks by REA Administrator Fred H. Strong in a panel discussion at the recent annual meeting of the National Rural Electric Cooperative Association at St. Louis, Mo.

ernment could not again lend funds to the cooperative after its debt was paid off.

2. The possible loss of certain technical advice and assistance from REA.

3. Objections by older members to the suspension of capital credits payments during the period when the debt was being wiped out.

4. Member-owners with substantial interest in the debt-free system might want to dispose of it and get the cash.

5. Loss of income possible when surplus funds are invested at a higher rate than the 2 percent interest paid REA.

While there has been no legal determination of the right of a debt-free cooperative to borrow again from REA, neither debt nor the lack of debt have a bearing on the right of REA to make loans under certain conditions. These include extending service to persons in rural areas not receiving central station service, and "heavying up" service to persons already receiving central station service.

It would seem doubtful, however, that loans could be made after full debt repayment to reimburse general funds for construction to reach new consumers or to pay off moneys borrowed privately for construction or other purposes. Such loans would constitute refinancing.

In contemplating accelerated debt reduction, every cooperative should guard against stripping its treasury of funds necessary to sound business operation and proper maintenance of facilities. It is important, too, that rates to members be kept at levels per-

mitting unrestricted use of electric power.

We often hear it said that no successful business operates without substantial long-term debt. That is largely true in the electric power industry, but many well-known companies in other lines of business are free of long-term debt.

If an REA-financed electric cooperative becomes debt-free, it obviously must have been obtaining new consumer capital at a rate fast enough to help wipe out its debt and meet current requirements for new capital. If it has been able to do both, why shouldn't it be able to continue meeting its new capital requirements in the same fashion and so save interest charges? Or, if it decides to borrow more money, what coop is in a better position than one which has no existing debt to complicate the picture?

There are those who advocate a maximum of indebtedness, arguing that commercial companies do it so why shouldn't co-ops? However, we know from experience that financially weak cooperatives, deep in debt, are far more likely targets for extinction than cooperatives which are economically strong and whose debt is low.

Our cooperatives are a permanent part of the American economy, and it's our job to keep them strong and healthy and able to carry on in ever-improving fashion the fine job of service their members have come to enjoy and expect.

THE NEXT 20 YEARS
RURAL LINES will explore future promises and problems of rural electrification in its May 1956 issue.

'NTC Spells Safe Reactors

Negative Temperature Coefficient Is Key To Reactors Stability

The phenomenal safety record achieved by the entire atomic industry since its inception has not just happened. Great emphasis has been placed on safety from the first advances into the atomic age. Utmost caution is required because human senses cannot detect nuclear radiations and because of the possibilities of 'run away' or extreme energy releases in the briefest periods of time.

The source of the heat developed by a nuclear reaction is the fission of uranium or other fissionable element. This fission results when neutrons enter the nucleus of the atom. Neutrons are most effective in causing fission when they arrive at the uranium nucleus with certain energy or speeds. This calls for a reduction of the tremendous speed with which the neutrons start out at the instant of fission.

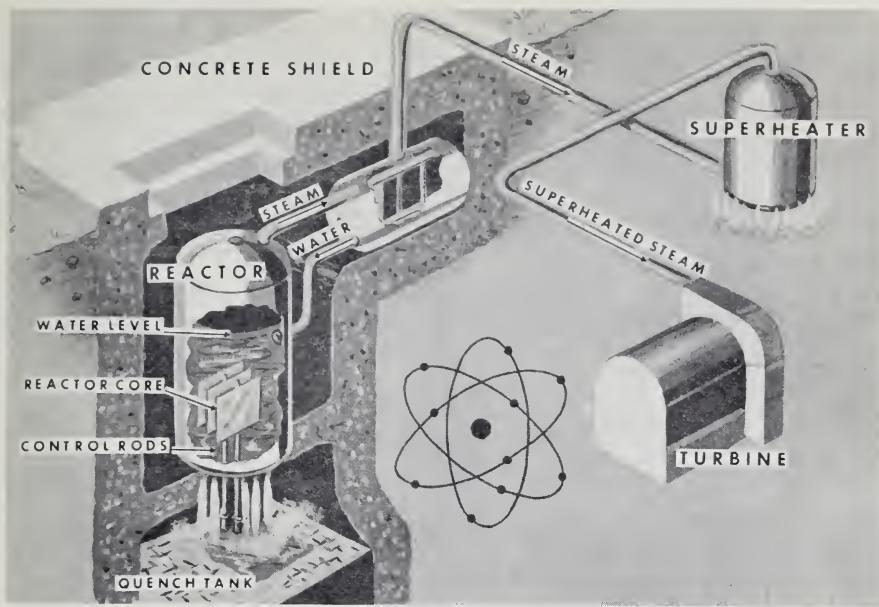
The reactor is designed and built so that neutrons will arrive at the uranium nucleus at the desired speed or energy. In a thermal reactor—one of the more common types—the speed of neutrons is reduced to approximately the speed of the molecules of the air at normal temperatures. These speeds, while quite low for neutrons, are much higher than normal concepts of speed.

A moderator is used in the reactor to reduce neutron speed. The moderator is nothing more than the proper element or chemical compound properly arranged in the reactor. Water (H_2O) is a frequently used moderator. When a neutron strikes the nucleus of a hydrogen atom (part of the water) it rebounds at a reduced speed similarly to the cue ball after striking a billiard ball. Actually, multiple collisions are required to reduce the speed of the neutron to the proper or desired speed.

What does all this have to do with preventing reactor run aways? As previously explained, neutrons are most effective in the fission process when their speed is controlled by a moderator.

Most elements and compounds expand as their temperatures increase. Thus as the reactor temperature rises, the number of atoms in a given volume of the moderator is reduced. In other words, the same number of atoms occupies more space. This effect reduces the efficiency of the moderator with the result that fewer neutrons achieve the best speeds.

This is one of a series of basic articles prepared by REA personnel who are cleared for atomic energy work and are engaged in REA's liaison work with the Atomic Energy Commission. The series will deal with the nature of atomic energy and its use in producing electric power.



Water serves as a moderator and coolant in this thermal reactor, and also helps to prevent run away. A properly designed reactor is to a large extent self-controlling.

to cause nuclear fission. Automatically there are fewer fissions.

Conversely, as the reactor and moderator cool down, there will be more atoms of the moderator in the same volume, the efficiency of the moderator increases, and more neutrons will move at the proper speeds to cause fission. Automatically there will be more fissions. This effect is called a *negative temperature coefficient*. It means that the reactor is to a large extent self controlling at any level of power output set by the control rods. The same general principles apply to all reactors. The designer devotes great effort to obtain a negative temperature coefficient in his reactor, so that as the reactor heats up the fission chain reaction is slowed down. This acts effectively to prevent reactor run aways.

To demonstrate this effect, the Atomic Energy Commission ran a series of tests on a reactor at Arco, Idaho. In these tests the control rods were removed from the reactor as fast as possible. In all reasonable cases the reactor brought itself under control in fractions of a second.

As a final test, the test group went to great effort and succeeded in removing the control rods so fast that the reactor destroyed itself before the negative temperature coefficient could stop the run away. Despite these abnormal conditions, the reactor parts were hurled only a distance of about 300 yards, or less than would ordinarily occur with a similar boiler explosion. The fact that it took considerable effort to achieve this destruction indicates that nuclear reactors should prove as safe as conventional power sources.

REA Presents

FARM WATER SYSTEMS

UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL ELECTRIFICATION ADMINISTRATION



COST OF WATER
APPEARS TO
THIS REA



REA's new color filmstrip, **FARM WATER SYSTEMS**, is here—just in time for those April and May power meetings!

FARM WATER SYSTEMS takes a practical how-to-do-it approach to the job of promoting water systems.

It goes on the assumption that the farmer is sold on the advantages of a modern water system, but wants to know how he can solve the many problems that seem to stand in the way. The 56-frame (double) filmstrip identifies these problems, then suggests several solutions for each problem.

Besides the problems shown on this page, **FARM WATER SYSTEMS** deals with the problems of adequate water supply, hard water, pump location and protection, financing, installation and sewage disposal. One sequence offers the tenant reasons to offer in overcoming the farm owner's hesitancy to put in a water system.

FARM WATER SYSTEMS also may be used with your own color transparencies to create a highly effective presentation on an adequate and safe water supply for the farm home and farmstead. The filmstrip is suitable for all types of meetings: Leadership, planning, training, youth work, or educational work direct with farmers.

How To Order: Write Photo-Lab, Inc., 3825 Georgia Ave., N.W., Washington 11, D.C., asking for filmstrip C-50. The price, \$5.00 per set, includes mimeographed script.

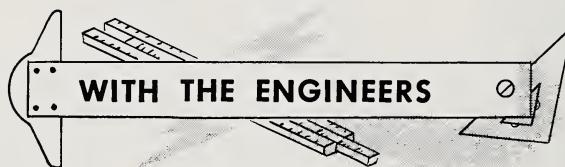


DAIRYLAND "NAVY" GOES AMPHIBIOUS



Construction crews of the Dairyland Power Cooperative, La Crosse, Wis., had to go "over water" recently to construct a pair of 2-pole structures for a new 161 KV transmission line. The site was isolated by swamp, impassable woods, and a Mississippi River slough.

The crossing was made on a 21 by 22 foot raft (see picture) formed from 35 oil drums, held together by sections of discarded transmission poles. The truck was cargo; crew members pushed the raft along with long poles.



High voltage fuses on substation transformers may not prevent a burn-out when a fault occurs within the substation.

• • • • •

System planning is the preparation of a rational program for the development of an electric power system, so that it can evolve in an orderly and economic manner.

• • • • •

Doors and windows should be inspected regularly for needed caulking, puttying, or hardware repairs.

• • • • •

Equipment stored in the warehouse is subject to deterioration. Don't gamble. Assure satisfactory service by checking the equipment in the shop before using.

• • • • •

The Federal Communications Commission recently ruled that power system operators must promptly take steps to eliminate objectionable power line interference.

POWER USE EXCHANGE



The Iowa Rural Electric Cooperative Association has issued a "1956 Power Use Program" for the 55 co-ops in the state. It lists the principal problems, suggested solutions, group activities, services available, goals, and also provides a calendar for each month of the year to help in planning power use activities. Charles R. Aiken, educational director, and the Member Education and Electric Use Committee prepared the booklet.

Duck River Electric Membership Corporation of Shelbyville, Tenn., reports that school lunches will be better as the result of new food freezers installed in three Marshall county schools. After Mrs. Emma Gilliam, county school lunch supervisor, told how the freezers would benefit the schools, local PTA groups and other civic organizations went right to work to raise funds for their purchase.

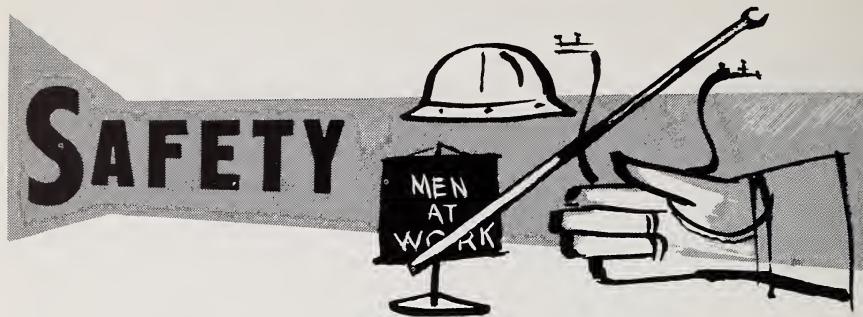
The San Isabel Electric Association, Southeast Colorado Power Association, and Southern Colorado Power Company gave their consumers extra incentive for purchasing new electrical equipment during early 1956. Each of the power suppliers provided an electric clothes dryer as a prize in a contest using tickets given

for each \$10 spent on new electrical equipment.

In the farm equipment field, milk coolers and water pumps are expected to be the best sellers in the next 5 years, with expenditures of some \$124 million, according to a recent REA estimate. They are followed by milking machines, \$77 million; drill presses, \$33 million; fractional horsepower motors, \$29 million; livestock watering equipment, \$26 million.

The S. E. Iowa Cooperative Electric Association, Mt. Pleasant, makes effective use of displays to inform members about farm uses of electricity. In the picture below, Harrison Moore, power use advisor, points to a display of publications in the co-op office. The lower panel illustrates good wiring technique.





Accident Reports Give Grim Warning

Death stalked the rural electric lines again in 1955.

Twenty-three fatalities were reported by REA borrowers during the year—an average of one fatality every 16 days. All were unnecessary, the tragic products of human carelessness.

Failure to use rubber gloves caused 18 of the 19 deaths from electric shock. Failure to use other protective measures also contributed to these fatal accidents.

The other four fatalities were caused by pole falling, pole handling, tree limb falling, and a crossarm striking a lineman.

Fatalities in 1955 were one less than in 1954 and the lowest since 1946, but electric shock took more lives than in 1953 or 1954.

An increased number of lost-time injuries were reported by REA borrowers last year—258 in 1955 compared with 235 in 1954. This disappointing outcome points up the need for intensified safety instruction and constant vigilance in the enforcement and practice of safety.

When the 1955 accidents are classified according to cause or result, falls appear as the chief factor with 56 injuries. The next

largest group of accidents were those caused by men being struck. Use of tools was a factor in 29 injuries, and electric shock in 18 others. Eye injury was the result in 17 accidents. Lost-time injuries also resulted from lifting, explosives, creosote burn, poison ivy, heat, and bites and stings.

REA recently issued an analysis of all the accident reports received from electrification borrowers since 1939. During this period there were 4,104 lost-time injuries and 382 fatalities. The 17-year summary shows electric shock as the principal cause of fatal accidents—280 compared with 33 from being struck, and 15 from falls. Being struck appears as the most frequent type of injury, with falls and electric shock next in number.

If "forewarned is forearmed," safety workers should be able to use this analysis to bring about a marked decrease in both fatalities and work injuries.

The safety rule, "Wear rubber gloves from ground to ground on all structures carrying energized conductors," if enforced by all REA borrowers on their systems, will reduce fatalities drastically.

Rural Lines

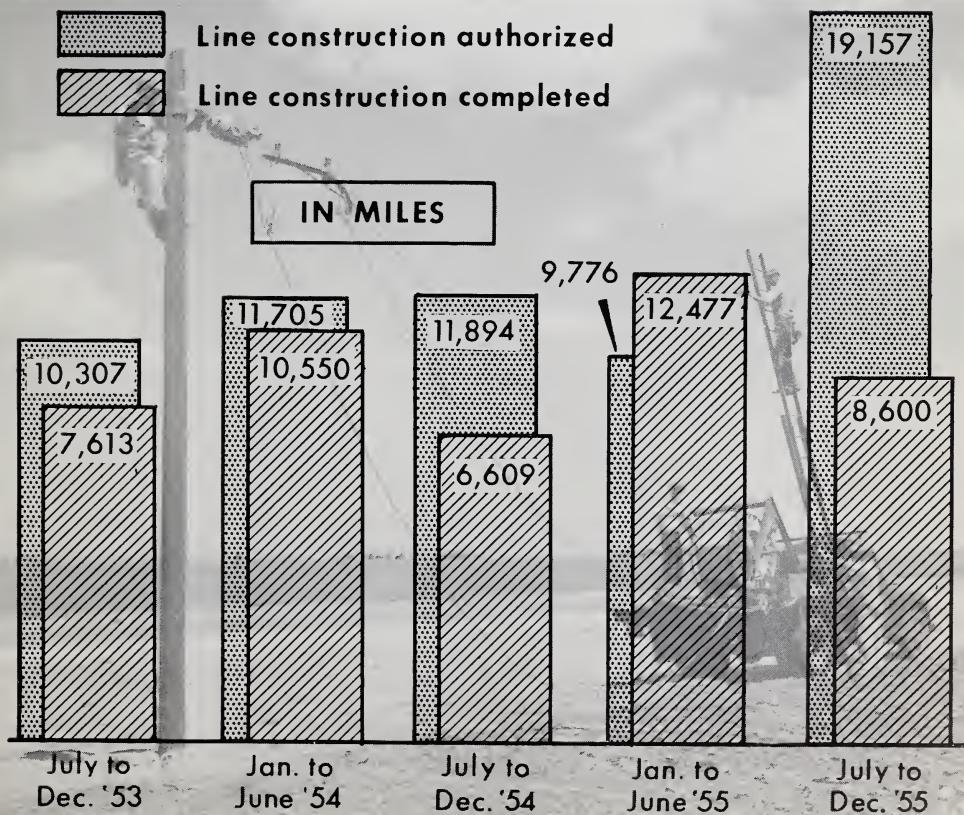
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See explanation of this chart on next page . . .



Telephone Construction Up

Completed Lines and Planned Mileage Show Big Improvement in Last Half of 1955

Construction activity of rural telephone borrowers reached a record level during the 6-month period ended December 31, 1955.

Line work completed during the last half of 1955 added up to 8,600 miles, a 30 percent gain over the first half of fiscal 1955. Central office installations continued to keep pace with outside plant construction.

During the same period contract approvals and work order authorization for line construction totaled 19,157 miles. This represents construction work to be carried out in future months. It is 62 percent more mileage than was approved in any previous 6-month period of the telephone program.

Line construction authorized up to the end of calendar 1955, totaled 86,543 miles on 246 rural telephone systems while the amount of completed outside plant work was 53,709 miles on 176 systems.

REA sees in the accelerated rate of construction of both central office and outside plant equipment the beginning of a speedier

“build-up” of modern telephone service for the country’s rural subscribers.

The sharp increase in construction work is credited to a combination of factors, all of which are expected to help borrowers to step up their construction goals even more in the years ahead.

Here are some of the reasons borrowers give for the improved construction picture:

The streamlining of REA pre-loan procedures which expedited the processing of loan applications and made construction funds available much sooner.

Consulting engineers and contractors, working with borrowers, have become more experienced and aware of the needs of rural telephone systems. Their organizations have been strengthened and they can now handle construction jobs more efficiently.

Another reason for the improved construction rate, borrowers explain, is the keen interest equipment manufacturers are demonstrating in the modernization of rural telephone systems today. This interest, along with the standardization of equipment

Progress in telephone construction under the REA program is shown in the chart on the preceding page. The record-breaking amount of line construction authorized during July-December 1955 foreshadows a new peak in line construction completed in the first half of 1956. The chart also indicates the seasonal nature of line construction which is greater in the first six months of the year.

and materials, has helped reduce the time lag in the delivery of construction orders to REA's telephone borrowers.

And together with these factors is the feeling by many borrowers that the telephone program is "growing up."

North Carolina Borrower Sets First Poles



Line construction work on the system of the Lower Cape Fear Telephone Membership Corporation of Elizabethtown, N. C., got off to a speedy start early this year with the help of new pole setting equipment owned by the contractor. The pole setting machine, used on the project, bored three holes and set 30-feet poles in them in 18 minutes.

On hand to see the setting of the first poles were J. R. Powell, co-op president, James Monroe, secretary-treasurer, and Thatcher Carr, manager, (at right of picture).

The REA-financed cooperative will begin serving rural subscribers in Bladen and Columbus counties over its new dial facilities about July 1, 1956.

A FORM 493
V. S. 54 U. S. DEPARTMENT OF AGRICULTURE
RURAL ELECTRIFICATION ADMINISTRATION
MASTER TELEPHONE BUDGET

INSTRUCTIONS: For complete information see
Staff Instruction 821-7.

BORROWER'S DESIGNATION
NAME AND ADDRESS OF CORPORATION

Construction Budgets Help

1. CONSTRUCTION (72 % IMPROVEMENTS 28 % NEW SERVICES):

A. CENTRAL OFFICE	21,000
B. OUTSIDE PLANT	127,500
C. STATION EQUIPMENT	26,500
D. LAND AND BUILDINGS	20,000
	\$ 195,000

Ever try spending \$1 million on a rural telephone system without a good construction budget? It would be a pretty tough job to tackle, wouldn't it?

Telephone borrowers have found there's a much easier and better way to plan for construction expenditures by using REA's loan budget plan (Master Budget, REA Form 493).

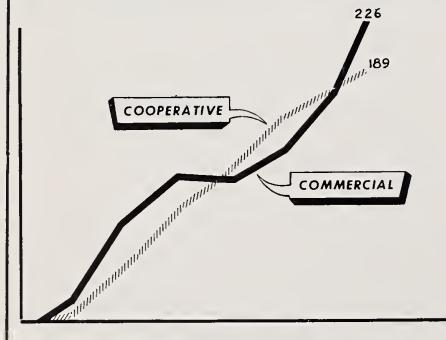
The construction budget sets forth the chief purposes for which loan and equity funds are intended to be used and the amounts estimated to be required for each purpose. By keeping total expenditures for each major purpose within the limits of funds budgeted, borrowers are assured of ample funds to complete their systems.

Of course, the loan budget is not a "cure-all." Neither is it a fool-proof plan, but borrowers who use the plan say it helps them do a better job of planning telephone construction programs.

The budget ties in closely with REA's loan procedure. For before REA will advance loan funds or approve the use of equity moneys, borrowers must show the exact amounts required and the purpose for which the funds are to be used.

In requesting advance in funds, wise borrowers have found it pays to ask for no more funds than they will need in the next 30 to 60 days. In this way they can save themselves interest expense. REA funds draw 2 percent interest as soon as they are advanced.

Trends in Telephone Borrowers



As shown in this chart, REA continues to add cooperative telephone borrowers at a steady pace. New commercial borrowers slowed down during the 1953 fiscal year, but the number is now increasing rapidly. The total number of borrowers stood at 415 on December 31, 1955, and is climbing at an average of from 5 to 10 per month.

'KO' for Line Vibration

REA Urges Use of Plastic Dampers in Preventive Maintenance

A small plastic tube is helping to lick the problem of line wire vibration in areas of high velocity winds. REA borrowers have put more than 1½ million of the dampers in service.

This low-cost, highly effective vibration damper is a polyethylene tube 18 inches long, spirally split for placing on the line wire. The inside diameter is $\frac{1}{4}$ inch and wall thickness $\frac{1}{16}$ inch. Designated as the "B" vibration damper, it costs about 8 cents. Only one damper per wire per span is required. The tubes are not fastened and are free to move on the line wire.

High winds also cause mid-span contacts which have long been a problem for the telephone industry. The problem is more troublesome now because of the expansion of dial service and the use of long span construction in rural areas. When a strong wind causes telephone wires to strike together, the contact causes excessive wear on expensive dial central office equipment.

To minimize these mid-span contacts in the high wind areas, REA has found it necessary to string telephone conductors at increased tensions. Increased tension tends to speed up fatigue failures in conductors due to vibration, but the plastic tube has

proved a simple and effective control.

REA technicians provide this testimony to the value of the damper:

"Conductors strung at higher tensions and equipped with vibration dampers experience less abrasion and fatigue than those strung at normal tensions without vibration dampers. Because of reduced conductor vibration pole line hardware loosening is also reduced. Dampers minimize annoying hum on structures caused by drop wires transmitting vibration from poles to buildings. The dampers reduce vibration approximately 99 percent and the end result will be longer conductor life, fewer service interruptions, and lower maintenance costs."

REA telephone borrowers will find it profitable to install vibration dampers where abrasion or fatigue breaks occur in lines. The practice is recommended also where there is reason to expect abrasion and fatigue breaks from vibration in the future. If this is done on a "maintenance" basis—whenever a pole supporting aerial wire is climbed for another purpose—the cost will be negligible. This activity could also be included as part of a scheduled preventive maintenance program.

UNITED STATES
GOVERNMENT PRINTING OFFICE
DIVISION OF PUBLIC DOCUMENTS
WASHINGTON 25, D. C.
OFFICIAL BUSINESS

PENALTY FOR PRIVATE USE TO AVOID
PAYMENT OF POSTAGE, \$300
(GPO)

LOANS APPROVED JANUARY 23 THROUGH
FEBRUARY 15, 1956

Electrification

\$ 378,000	Southwest Texas Electric Co-op, Eldorado
400,000	Loup Valley Rural PPD, Ord, Nebr.
157,000	Johnson County Electric Co-op Association, Cleburne, Texas
205,000	Grayson-Collin Electric Co-op, Van Alstyne, Texas
* 50,000	Central Rural Electric Co-op, Stillwater, Okla.
770,000	Anoka Electric Coperative, Anoka, Minn.
400,000	Salt River Rural Electric Co-op, Bardstown, Ky.
1,040,000	Blue Ridge Electric Membership Corp., Lenoir, N. C.
1,070,000	Cap Rock Electric Cooperative, Stanton, Texas
* 50,000	Central Electric Cooperative Ass'n., Blunt, S. Dak.
* 50,000	Mille Lacs Region Cooperative Power & Light Ass'n., Aitkin, Minn.
327,000	West Oregon Electric Cooperative, Vernonia
1,290,000	Valley Rural Electric Cooperative, Huntingdon, Pa.
460,000	Kiwash Electric Cooperative, Cordell, Okla.
345,000	Dawson County PPD, Lexington, Nebr.
* 100,000	Red Lake Electric Cooperative, Red Lake Falls, Minn.
660,000	Pioneer Co-op Ass'n., Ulysses, Kans.
* 100,000	North Arkansas Electric Co-op, Salem, Ark.

*—Includes Section 5 funds

105,000	Washington Electric Co-op, East Montpelier, Vt.
800,000	DeWitt County Electric Co-op, Cuero, Texas
260,000	Cedar-Knox County Rural PPD, Hartington, Nebr.
605,000	Jamez Mountains Electric Co-op, Espanola, New Mex.
450,000	Jasper County REMC, Rensselaer, Ind.

Telephone

\$ 106,000	Fredericksburg and Wilderness Tel. Co., Chancellor, Va.
358,000	Clay County Rural Tel. Co-op, Poland, Ind.
455,000	Project Mutual Tel. Co-op Ass'n., Rupert, Idaho
46,000	Elijah Telephone Company, Elijah, Ga.
795,000	Pioneer Telephone Association, Ulysses, Kans.
153,000	Griswold Cooperative Tel. Co., Griswold, Iowa
293,000	Eastern Slope Rural Tel. Ass'n., Limon, Colo.
382,000	Diller Telephone Co., Diller, Nebr.
335,000	Citizens Telephone Cooperative, New Auburn, Wis.
208,000	Palo Pinto Telephone Company, Palo Pinto, Texas
337,000	Smithville Telephone Company, Ellettsville, Ind.
117,000	Granby Telephone and Telegraph Co., Granby, Mass.
63,000	SCVAK Telephone Company, Big Spring, Texas